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Effects of Capital Utilization and Industry Difference on FDI Performance: Taiwanese Firms in Mainland China, Singapore, Malaysia, and Thailand

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In recent years, the deterioration of the investment environment in Taiwan has forced local industries to move abroad. Enterprises from Taiwan that invest in mainland China or Southeast Asian countries take advantage, as do their counterparts from other countries, of lower labor and land costs in order to enter the tremendous local markets and eventually help improve the economic conditions of these host countries.

Firms investing in foreign countries face capital and production migration problems. In this paper, we apply objective information about foreign direct investment (FDI) found in financial statements to explore the

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effects of capital and industry when Taiwanese firms invest in mainland China or Southeast Asian countries. This empirical study investigates the financial performance of these firms from the viewpoints of capital utilization, industrial difference, and the macroeconomic environment.

KEYWORDS: **Southeast Asia; foreign direct investment (FDI); capital utilization; industry difference; financial performance; cross-Strait investment**

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In recent years, manufacturing firms in Taiwan have been losing their competitive advantage due to such factors as change in the operating environment, rising labor costs, labor supply shortages, and insufficient supply of industrial land. Most firms have chosen to move their production plants to Southeast Asia or mainland China in order to capture lower labor and land costs, or to exploit the larger market potential. According to governmental statistics in Taiwan, foreign direct investment (FDI) has risen dramatically from 1991 to 2000. During this decade, the total amounts of FDI flows were, in descending order: 41.73 percent (about US$17,102 million) to mainland China; 10.09 percent (about US$4,136 million) to the United States; 3.22 percent (about US$1,320 million) to Singapore; and 2.09 percent (about US$1,062 million) to Malaysia. These figures indicate the importance of mainland China and Southeast Asian countries to Taiwanese foreign investors. Whether such capital movements bring about negative or positive effects is yet an unanswered question. This study intends to trace the use of investment capital through data collection and, more specifically, to evaluate the investment performance of this foreign capital through empirical research.

The major focus of this study is on the interaction between the firms and their environment, mainly on the effect of three major dimensions of the environment on investment performance: (1) the macroeconomic factors of the domestic and host countries, (2) industrial growth potential, and (3) such internal environmental factors as the firm's operating situation, the source of capital, and the efficiency of capital utilization. Finally, this study will draw policy implications based on the empirical findings.

Literature Review and Theoretical Framework

Capital Structure

The indifference theory of capital structure developed by Modigliani and Miller points out that, in a perfect market (i.e., no transaction costs, same information, risk-free rate, and no taxes), a firm is valued by its operating ability instead of its capital structure.[1] Given that several practical factors (such as taxes, bankruptcy costs, and agency problems) are not considered in the Modigliani and Miller theory, many researchers have proposed several other theories that relate a firm's capital structure to its value.[2] However, another model developed by Miller found that when both corporate and individual taxes were taken into account, a firm's tax-savings with debt become controversial. That is, the tax-savings with debt might be partially offset by individual income tax, and as debt increases, the offset would be more effective. In this situation, capital structure becomes irrelevant again.[3] However, the capital structure of a firm could be altered interactively by the utilization of capital to investments in different operating environments such as foreign direct investments. In addition, the cost benefits and tax incentives in different countries are issues worthy of further investigation in terms of determining a firm's value.

Capital Utilization

A firm's financing operation may affect its form of foreign investment and further influence investment performance. The size of the parent company, debt ratio, investment amount, product growth potential, and profitability are usually strongly related to a firm's capital-raising capability, financing operation, and capital efficiency.

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[1]Franco Modigliani and Merton H. Miller, "The Cost of Capital, Corporation Finance, and the Theory of Investment," *American Economic Review* 48 (1958): 261-97.

[2]In a 1978 article, Miller and Scholes described how investors could shelter or delay income from stock to the point where the effective personal tax rate on such income is essentially zero. See Merton H. Miller and Myron S. Scholes, "Dividends and Taxes," *Journal of Financial Economics*, 1978, 333-64. However, the 1986 changes in the tax law eliminated most of what Miller and Scholes discussed.

[3]Merton H. Miller, "Debt and Taxes," *The Journal of Finance* 32 (1977): 261.

A firm's capital-raising capability is usually related to its size. To raise long-term capital, a firm would initially rely on its parent company, and secondarily on its bank. Under the same conditions, the size of operation usually reflects a firm's competitive advantage. Gomes-Casseres found that a larger firm would enjoy higher capital-raising ability, a better chance to enhance competitive capability, and a larger market share. Accordingly, its overall performance might be better than that of a smaller firm.[4] In one empirical study, Cavusgil and Nevin defined company size by the number of employees and determined that size is an indicator of profitability.[5] Focusing on investment by Taiwanese firms in mainland China, Hsu found that the financial performance of smaller firms is better than that of larger firms, with no significant difference in financial performance between different sizes of investment amounts.[6]

Yu and Ito found that the amount of investment is another factor affecting a firm's performance. Once a firm holds a more optimistic attitude toward foreign investment, the company would invest a larger amount and thus enjoy better performance.[7] Other studies also found a positive relationship between a foreign subsidiary's performance and its parent company's financial support.[8]

The growth potential and profitability of a parent company might signify the market position of a firm's product, and furthermore reflect

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[4]Benjamin Gomes-Casseres, "Joint Venture Instability: Is it a Problem?" *Columbia Journal of World Business*, 1987, 97-107.

[5]Tamer S. Cavusgil and John R. Nevin, "Internal Determinants of Export Marketing Behavior: An Empirical Investigation," *Journal of Marketing Research* 18 (1981): 114.

[6]Hsu Meng-Han, "A Study of Ownership Strategy and the Subsidiary Performance of Taiwan Firms Investing in Mainland China" (M.A. thesis, Graduate Institute of Accounting, National Cheng Kung University, Tainan, Taiwan, 2000), 92-95.

[7]Chwo-Ming J. Yu and Kiyohiko Ito, "Oligopolistic Reaction and Foreign Direct Investment: The Case of the U.S. Tire and Textile Industries," *Journal of International Business Studies* 19 (1988): 454.

[8]E.g., John D. Daniels, "Recent Foreign Direct Manufacturing Investment in the United States," *Journal of International Business Studies* 1 (1970): 125-32; Raymond Vernon, "Organizational and Institutional Responses to International Risk," in *Managing International Risk*, ed. Richard J. Herring (New York: Cambridge University Press, 1983), 191-216; and Avraham Shama, "Determinants of Entry Strategies of U.S. Companies into Russia, the Czech Republic, Hungary, Poland, and Romania," *Thunderbird International Business Review* 42 (2000): 651-76.

competitive capability. Once able to gain profits, a firm would be able to generate capital not only internally, but externally as well. The acquired capital therefore may allow a firm to adopt an aggressive strategy, and to take adherent risk in the market. Chen's empirical study found that the growth rate of sales is more favorable for a smaller firm who invests abroad.[9] Chiou, Wang, Wu, and Yao's study also found that a higher sales growth rate results in longer profit margins and better performance for overseas investments.[10]

Difference in Industry and Location

An industry is comprised of a group of business firms. In an industry, such variables as competitive markets and production situations affect firms in the group. Industrial profitability constitutes one of the major drivers of a firm's global strategy. Whenever a particular industry in the host country gains high profitability, foreign investors in the country are expected to pursue the economic gains by concentrating efforts on local sites rather than exporting to international markets.[11] This strategic choice could enable FDI to exploit more economic benefit from indigenous market growth and industrial profitability.[12]

Industry growth potential might indicate the firm's competitive competence and profitability. Porter argues that rapid industry growth ensures a strong financial performance.[13] Because industry sales growth is also interrelated with market demands and customer traits as well as volatility of competitive behavior, a firm's strategies will vary from industry to in-

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[9]Tain-Jy Chen, "Determinants of Taiwan's Direct Foreign Investment: The Case of a Newly Industrializing Country," *Journal of Development Economics* 39 (1992): 401.

[10]Jeng-Ren Chiou, Ming-Long Wang, Jyh-Jeng Wu, and Mei-Hui Yao, "Entry Mode and Performance of Taiwanese Firms' Foreign Direct Investment: The Case of China and Southeast Asian Nations" (Working Paper, Graduate Institute of Accounting, National Cheng Kung University, Tainan, Taiwan, 2001), 19-20.

[11]John Child and Yuan Lu, "Industrial Decision-Making under China's Reform, 1985-1988," *Organization Studies* 11 (1994): 321-51.

[12]George S. Yip, "Industry Drivers of Global Strategy and Organization," *The International Executive* 36 (1994): 529-56.

[13]Michael E. Porter, *Competitive Advantage: Techniques for Analyzing Industries and Competitors* (New York: Free Press, 1980), 8.

dustry.[14] Chiou, Wang, Wu, and Yao's study has revealed that a higher sales growth rate on the part of the parent company would result in better performance of its overseas business.[15]

An empirical study done by Gatignon and Anderson found that the research and development (R&D) intensity level of a parent company has a significantly positive effect on its overseas investment under sale proprietorship.[16] Prasad and Kang's study on Japanese firms also found a positive relationship between R&D intensity level and overseas partnership, which in turn affects overall performance.[17]

On the other side, the choice of location for FDI is based on the advantage of location that maximizes the value of firm-specific asset net setup costs. In fact, firm-specific, locational, and international advantages are the three ingredients of FDI theory.[18] Chen and Chen compared the FDI differences among the United States, China, and Southeast Asia. In terms of firm-specific advantages, firms investing in the United States were shown to have high R&D intensity, and experienced the highest rate of sales growth. In contrast, firms investing in China were shown to have the lowest rate of sales growth. Firms investing in Southeast Asia lie in between China and the United States, yet the difference between China and Southeast Asia is statistically insignificant. Concerning locational factors, firms investing in China consider the PRC to have the lowest production costs among the three sites, followed by Southeast Asia and the United States—yet the difference between China and Southeast Asia is statistically insignificant.[19]

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[14]Bruce Kogut, "Joint Venture: Theoretical and Empirical Perspective," *Strategy Management Journal* 9 (1988): 319-32.

[15]See note 10 above.

[16]Hubert Gatignon and Erin Anderson, "The Multinational Corporation's Degree of Control over Foreign Subsidiaries: An Empirical Test of a Transaction Cost Explanation" (Working Paper, The Wharton School, University of Pennsylvania, Philadelphia, 1986).

[17]Padmanabhan Prasad and Rae Cho Kang, "Ownership Strategy for a Foreign Affiliate: An Empirical Investigation of Japanese Firms," *Management International Review* 36 (1996): 45-65.

[18]John H. Dunning, "Toward an Eclectic Theory of International Production: Some Empirical Tests," *Journal of International Business Studies* 11 (1980): 9.

[19]Homin Chen and Tain-Jy Chen, "Network Linkage and Location Choice in Foreign Direct Investment," ibid. 29 (1998): 445-68.

Macroeconomic Environment

Most developing countries give foreign companies incentives to invest in certain local industries. Additionally, labor cost is another important consideration in the evaluation of production cost. Chen indicated that high wages and production and operating costs are unfavorable factors for investment consideration, and cheap wages are usually more attractive.[20]

Market growth potential is another consideration of overseas investors. Shama's study found that the entry mode of U.S. firms into Eastern European countries is mostly related to the market potential of these countries. Being much larger than that of Hungary, Poland, Slovakia, and the Czech Republic, the market of the Soviet Union attracts the most capital from U.S. firms.[21] Shama's further study pointed out that firms evaluate market growth potential and the competitiveness of local markets before entering Eastern European markets.[22]

The quality of infrastructure of a developing country is an important factor that attracts foreign investment. Brush, Martin, and Karnani found that the readiness of infrastructure of a host country is positively related to the attractiveness of foreign investment.[23] Chiou, Wang, Wu, and Yao's study further pointed out that the better infrastructure of a host country would produce a higher performance by overseas businesses.[24] Chen focuses on the case of China, discusses the interaction between FDI and China's economic development, and concludes that FDI contributed to aspects of capital formation, trade expansion, and the institutional demonstration effect.[25]

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[20]See note 9 above.

[21]Avraham Shama, "Entry Strategies of U.S. Firms to the Newly Independent States, Baltic States, and Eastern European Countries," *California Management Review* 37 (1995): 90-109.

[22]Shama, "Determinants of Entry Strategies of U.S. Companies into Russia, the Czech Republic, Hungary, Poland, and Romania," 651-76.

[23]Thomas H. Brush, Catherine A. Martin, and Aneel Karnani, "The Plant Location Decision in Multinational Manufacturing Firms: An Empirical Analysis of International Business and Manufacturing Strategy Perspectives," *Production and Operations Management* 8 (1999): 119.

[24]See note 10 above.

[25]Yong-Sheng Chen, "Foreign Direct Investments and Economic Development in China," *Zhongguo dalu yanjiu* (Mainland China Studies) (Taipei) 44, no. 3 (March 2001): 17-43.

Firm's Financial Performance

The measurement of the effectiveness of global operations can be determined in terms of various aspects with multiple criteria. Chen summarized all kinds of criteria in two main categories: objective and subjective criteria.[26] The objective criteria are based on such financial indicators as profitability, rate of investment return, and return on assets. Some nonfinancial indicators—such as the level of business survival (Killing),[27] duration of survival (Harrigan),[28] and stability of shareholding (Gomes-Casseres)[29]—are also commonly used in the literature. The objective criteria have been used widely in measuring the effectiveness of foreign direct investment in a firm. However, these approaches also have practical constraints. Anderson pointed out that the objective indicators of effectiveness could only be used as part of a measurement schematic.[30] A firm must take other qualitative steps to measure its overseas market because several years are usually required to show positive financial performance. In this case the subjective criteria—such as the satisfaction level of the home company, market shares, and technology transfers—serve as supplements. However, this paper intends to explore the usefulness of financial statements in the research area of foreign direct investment. Thus we consider only the objective financial indicators, such as return on investment and growth rate of net profit.

In sum, having reviewed the previous research findings and having discussed the theoretical foundations, we now have a research framework that possesses four main dimensions: (1) capital utilization, (2) industrial differences, (3) the macroeconomic environment, and (4) firm financial performance (see figure 1). The major purpose of this study is to apply this

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[26]See note 9 above.

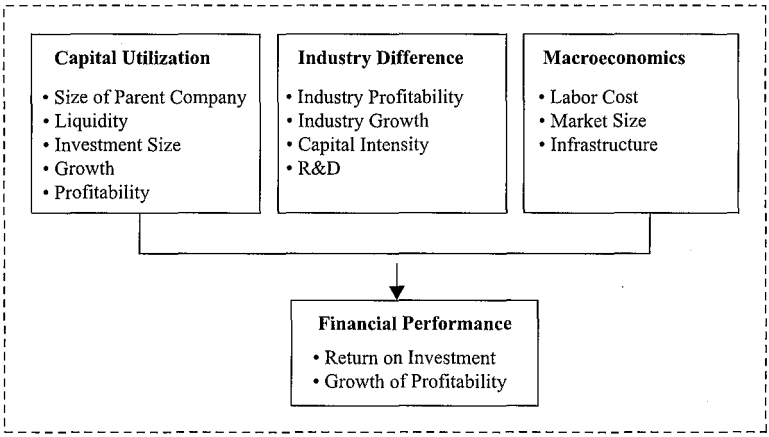
[27]Paul W. Beamish and J. Peter Killing, *International Management* (Chicago: Irwin, 1990), 129.

[28]K. Rudie Harrigan, *Strategic Alliances and Partner Asymmetries: Cooperative Strategies in International Business* (New York: Lexington Books, 1988), 205-26.

[29]Benjamin Gomes-Casseres, "Firm Ownership Preferences and Host Government Restrictions: An Integrated Approach," *Journal of International Business Studies* 21 (1990): 1-22.

[30]Erin Anderson, "Two Firms, One Frontier: On Assessing Joint Venture Performance," *Sloan Management Review*, 1990, 19-30.

Figure 1
Conceptual Framework



framework to Taiwanese firms' investments in mainland China and Southeast Asia. Due to the change in the macroeconomic environment, capital and industry migration may occur in these countries due to a search by companies for better profits on their FDI. By analyzing the interaction of the above-mentioned four dimensions, the goal of this paper is to highlight similarities and differences in investment trends.

Research Design and Empirical Method

The companies in the paper were sampled from firms listed either on the Taiwan Stock Exchange or the Taiwan Over-the-Counter market. The industrial groups deal in such areas as electronics, food, plastics, textile, machinery, and chemicals. The data were mainly taken from two data banks: *Taiwan Economic Journal* (TEJ)[31] and *The World Competitiveness Yearbook 2000*.[32]

[31] Available at <http://www.tej.com.tw>.

[32] IMDI (International Management Development Institute), *The World Competitiveness Yearbook 2000* (Switzerland, 2000).

In terms of hypothesis development, the major focus of this paper is to analyze the effect of capital, industry, and macroeconomic factors on the investment performance of Taiwanese firms in mainland China, Singapore, Malaysia, and Thailand. This paper further attempts to uncover the relationship between the above factors and the growth of investment return in mainland China—with a particular focus on uncovering whether performance differs among countries and industries.

The sufficiency, sources, and utilization efficiency of capital are inevitably the major concerns when investing abroad. In order to discover how these factors affect investment performance, this paper forms the first hypothesis as:

Hypothesis 1: *The capital factors of the parent company have no significant effect on the financial performance of overseas investment.*

To test this hypothesis, a regression analysis is used, and the variables representing capital factors will consist of the parent company's size, debt ratio, investment amount, growth rate of sales, growth rate of assets, return on assets, and net profit.

The change in external environments may impact business operations. In addition to the macroeconomic environment, industry condition usually affects a firm's profitability and growth potential. This paper thus tries to test a second hypothesis:

Hypothesis 2: *Industrial differences cause no significant effect on the financial performance of overseas investment.*

Here the industry factors consist of four variables: growth rate of industry profit, growth rate of industry sales, capital intensity, and investment intensity. Regression analysis is applied to analyze the effect of these variables on financial performance, and to discover the relationship between these variables and the growth rate of investment return in mainland China.

This paper further proposes that the level of resources sufficiency, infrastructure, wages, taxes, and market size of the macro environmental factors would affect a firm's financial performance of overseas investment.

The third hypothesis is developed as:

Hypothesis 3: *Macroeconomic factors have no significant effect on the financial performance of overseas investment.*

In the macroeconomic dimension, three variables are used: infrastructure, labor cost, and market size. Regression analysis is also used to test this hypothesis.

The research samples used in this paper are the firms with shares listed on the stock exchange and those with overseas investment in mainland China, Singapore, Malaysia, and Thailand. The fourth hypothesis thus is developed as:

Hypothesis 4: *The investment in different countries results in no significant difference in terms of investment amount, sales growth rate of the parent company, and financial performance.*

In this case, the one-way ANOVA and Scheffe test will be used to analyze if any difference exists in various aspects of foreign direct investments among sample countries.

Research Findings

Sample Distribution and Descriptive Statistics

The sample companies in this paper were chosen based on 1999 data. Effective samples are 306 in total, covering investments in mainland China (211), Singapore (35), Thailand (33), and Malaysia (27). Based on the sample distribution in table 1, about half of the Taiwanese firms with overseas investment in 1999 were engaged in the electronics industry (according to the Taiwan Stock Exchange industry code). More than two-thirds of Taiwanese companies in 1999 have undertaken investments in mainland China. The average return on foreign investment of overall Taiwanese companies was about 8.87 percent in 1999, as table 2 indicates.

Table 1
Sample Distribution of Industries and Countries

Industry	China		Singapore		Malaysia		Thailand		Total	
	Sample size	%	Sample size	%	Sample size	%	Sample size	%	Sample size	%
Electronics	98	46.0%	25	71.4%	16	59.3%	18	54.5%	157	51.3%
Food	45	21.3%	0	0.0%	0	0.0%	6	18.1%	51	16.7%
Plastics	20	10.0%	2	5.7%	1	3.7%	4	12.1%	27	8.8%
Textile	10	4.7%	0	0.0%	0	0.0%	1	3.0%	11	3.6%
Machinery	20	20.0%	5	14.3%	4	14.8%	0	0.0%	29	9.5%
Chemicals	18	9.0%	3	8.6%	6	22.2%	4	12.1%	31	10.1%
Total	211	100.0%	35	100.0%	27	100.0%	33	100.0%	306	100.0%

Notes: (1) Percentage represents the industry's percentage of sample size in the country. (2) The shaded area indicates where the percentage exceeds 10 percent.

Accounting Information and Financial Performance

The authors applied regression analysis to reveal the accounting information of the financial performance of Taiwanese overseas investments in terms of capital utilization, industrial difference, and the macroeconomics of the local country. Initially, the investments of all sample companies in various countries were evaluated in terms of return on investment. Secondly, the overseas investments in mainland China were separately investigated to see if the results would differ. Finally, we analyzed the difference of financial performance in various countries.

After checking the accounting information index, including return on investment and growth of profitability, the authors found a normal distribution.[33] We used regression and ANOVA tests to analyze the relations among variables. The major difference between the two methods is that one is used for quantity-related variables and the other for quality-related

[33]For testing the assumption of normal distribution, we used K-S nonparametric statistics to test the two null hypotheses that the return on investment and the growth of profitability are assumed to be normal respectively. The statistical results indicated that Z = 4.485 (p-value = .000) for the return on investment and Z = 6.674 (p-value = .000) for the growth of profitability. The results confirmed the normality assumption.

Table 2
Descriptive Statistics

Variable		Measurement	Sample Size	Mean	Standard Deviation
Capital Utilization	Size of parent company	Common stock	306	7,894,516.00*	1,109,382.00*
	Liquidity	Debt ratio (%)	306	39.19	13.30
	Investment size	Investment cost	306	240,213.00*	350,917.00*
	Growth	Return on assets growth rate (%)	306	1.87	6.58
	Profitability	After-tax profit ratio (%)	306	6.59	13.00
Industrial Differences	Industry profitability	Industry net income (%)	306	6.27	8.86
	Industry growth	Growth rate of industry sales (%)	306	74.74	65.65
	Capital intensity	Fixed asset/sales (%)	306	45.60	42.34
	R&D	R&D expense/ sales (%)	306	2.428	3.482
Macroeconomics	Labor cost	Salary/per hour (US$)	306	3.186	2.429
	Market size	GDP (US$)	306	6,158.60	8,551.80
	Infrastructure	Infrastructure	306	18.07	10.78
Financial Performance		Return on investment (%): **ROI**	306	8.87	49.16
		Growth rate of before-tax profit (%): **IG**	209**	1.09	19.14

Notes: (1) * = NT dollar in thousands. (2) **Only firms investing in mainland China.

variables. On the multi-collinearity questions, we checked the variance inflationary factor (VIF). Based on the VIF (all are under 10), there is no question of multi-collinearity.

1. *Financial performance of the sample companies*: According to the regression results shown in table 3, there exists a significant relationship between return on investment and size of the parent company, debt ratio, and rate of after-tax net income.[34] However, there were no significant re-

[34]Since the empirical model is a multivariate one, we employed a multinomial logistic regression. The results showed that the Chi-squares of likelihood ratio for these two models of return on investment and growth of profitability are 21.017 (p-value = .0126) and

Table 3
Regression Results of Capital Utilization and Industrial Differences on Financial Performance as a Whole

Independent Variable		Measurement	β	t-value	P-value
Capital Utilization	Size of parent company	Common stock	**-6.240E-07**	**-2.359**	**0.019****
	Liquidity	Debt ratio (%)	**0.435**	**1.682**	**0.094***
	Investment size	Investment cost	9.89E-07	0.123	0.902
	Growth	Return on assets growth rate (%)	0.734	1.41	0.159
	Profitability	After-tax profit ratio (%)	**0.833**	**2.428**	**0.016****
Industry Difference	Industry profitability	Industry net income ratio (%)	-1.319	-0.599	0.549
	Industry growth	Growth rate of industry sales (%)	5.15E-02	0.723	0.47
	Capital intensity	Fixed asset/sales (%)	-3.641E-02	-0.513	0.609
	R&D	R&D expense/sales (%)	-0.902	-1.104	0.27
R-squared			0.073		
Adjusted R-squared			0.04		
F-value			2.048		
P-value			0.024**		

Notes: (1) The shaded area denotes significance; (2) *: P < 0.1, **: P < 0.05; (3) Dependent variable: **ROI** (Return on investment).

sults overall from the sample companies in terms of industrial difference. The size of the parent company significantly affects Taiwanese overseas investment in a negative way. A similar result was indicated by Chiou, Wang, Wu, and Yao.[35] Perhaps the overseas investments of major Taiwanese companies tend to be larger and thus require more time to turn a profit. Small firms adapt easily to local and foreign environments. The environment-adapting ability of small firms may be a factor behind profitable overseas investment.

There exists a positive relationship between the profitability of overseas investment and the liquidity of the parent company. The above literature review has shown that Taiwanese companies tend to borrow for their

23.5187 (p-value = .0051) respectively. The Gamma values for these two models are 0.245 and 0.228. They indicate a significant profit-making phenomenon.

[35]See note 10 above.

Table 4
Regression Results of Macroeconomics on Performance

Independent Variable	Measurement	β	t-value	P-value
Labor cost	Salary/per hour (US$)	**–43.12**	**–2.153**	**0.057***
Market size	GDP (US$)	**1.315E-02**	**2.253**	**0.048****
Infrastructure	Intrastructure ranking	–0.792	–0.608	0.556
Adjusted R-squared			0.139	
F-value			1.7	
P-value			0.23	

Notes: (1) The shaded area denotes significance; (2) *: $P < 0.1$, **: $P < 0.05$; (3) Dependent variable: **ROI** (Return on investment).

overseas investments. The funds from loans give firms sufficient capital to maintain their competitive position and create more opportunity to make profits. In the meantime, the profitability of its parent company positively affects the performance of the Taiwanese firm's overseas investments. Based on similar reasoning, the sufficient resources of the parent company give its overseas subsidiary more of a chance to be profitable.

The regression results in table 4 show the effect of the local macroeconomic environment on the financial performance of Taiwanese overseas investment in the four sample countries as a whole. Significant results were obtained between return on investment, labor costs ($t = -2.153$, $P = 0.057$) and market size ($t = 2.253$, $P = 0.048$). Labor cost is one of the major incentives for a firm to move abroad. The empirical results confirm the impact of this incentive. Lower labor costs make it easier for firms to make more money.

2. *Financial performance in mainland China*: According to the empirical results in table 5, there exits a significant relationship between the growth rate of net profit for the Taiwanese firms with investment in mainland China and their parent company's growth rate of return on total assets, rate of industry profits, and growth rate of industry sales.

In terms of capital source, the growth of the parent company has a more significant result ($\beta = -7.702$, $t = -2.405$, $P = 0.017$) than other capital factors as far as the growth of profitability of Taiwanese overseas invest-

Table 5
Regression Results of Capital Utilization and Industrial Differences on Financial Performance in Mainland China

Independent Variable		Measurement	β	t-value	P-value
Capital Utilization	Size of parent company	Common stock	–1.458E-06	–1.597	0.112
	Liquidity	Debt ratio (%)	–0.658	–0.708	0.48
	Investment size	Investment cost	–2.650E-06	–0.104	0.917
	Growth	Return on assets growth rate (%)	**–7.702**	**–2.405**	**0.017****
	Profitability	After-tax profit ratio (%)	–0.967	–0.853	0.395
Industry Difference	Industry profitability	Industry net income ratio (%)	**–14.166**	**–1.922**	**0.056***
	Industry growth	Growth rate of industry sales (%)	**0.543**	**1.961**	**0.051***
	Capital intensity	Fixed asset/sales (%)	0.194	0.687	0.493
	R&D	R&D expense/sales (%)	–2.516	–0.953	0.342
R-squared			0.092		
Adjusted R-squared			0.04		
F-value			1.767		
P-value			0.062*		

Notes: (1) The shaded area denotes significance; (2) *: $P < 0.1$, **: $P < 0.05$; (3) Dependent variable: **IG** (Growth rate of before-tax profit).

ments is concerned. However, the negative relationship may reflect the effect of related-party transactions on the parent company's financial statement and investment performance in mainland China.

The industry dimension shows more interesting results. The profitability and sales situation across the entire industry on Taiwan increase the incentives of firms to go abroad. The low level of industry profit spurs firms to move out and seek a better place to lower production costs and raise profits via foreign investment. However, the growth in industry sales is always a major driving force which affects growing profitability. These results are shown empirically in a negative ($\beta = -14.166$, $t = -1.922$, $P = 0.056$) and positive ($\beta = 0.543$, $t = 1.961$, $P = 0.051$) relationship of industry net profit and growth in industry sales in table 5.

Financial Performance in Different Countries

In 1999, Taiwanese overseas investments performed best in financial terms in Malaysia, followed by Thailand, mainland China, and Singapore,

Table 6
ANOVA Analysis of Selected Countries

Variable	China	Singapore	Malaysia	Thailand	F-value	P-value	Scheffe
ROI (%)	6.9763	1.4766	25.1904	15.4585	1.566	0.198	M>T>C>S
Size of parent company***	280,767.07	111,361.09	194,420.15	155,042.85	3.391	0.018**	C>S**
Sales growth rate (%)	11.8111	20.6649	5.8507	11.5067	2.173	0.091*	S>M*

Notes: (1) The shaded area denotes significance; (2) *: $P < 0.1$; **: $P < 0.05$; (3) C: **China**; S: **Singapore**; M: **Malaysia**; T: **Thailand**. (3) *** = New Taiwan dollar in thousands for the first four figures in the row.

even though the difference in the financial performance is not statistically significant (as shown in table 6). The one-way ANOVA also indicates significant differences among various countries in the investment size and the growth in sales of the parent company of Taiwanese overseas investments under the homogeneity assumption of variance.

Although the F test in ANOVA may allow us to reject the null hypothesis, it does not exactly pinpoint where the significant differences are located. The results are similar to those found by Chen and Chen: the difference between China and Southeast Asia is statistically insignificant.[36] Scheffe's test can investigate specific group differences of interest in conjunction with ANOVA.[37] Based on the Scheffe's test, the size of Taiwanese overseas investment in mainland China is significantly higher than that in Singapore ($F = 3.391$, $P = 0.018$). The smaller geographical area of Singapore may discourage the investments of large production plants, and in turn affect the incoming investment size. Most Taiwanese firms in Singapore may serve in a trading role in the electronics industry. On the contrary, Taiwanese investments in mainland China may be comprised of those firms that need a large production base in various industries. Nevertheless, the growth of the parent company's sales of Taiwanese firms in Singapore is

[36]See note 19 above.

[37]Joseph F. Hair, Jr., Rolph E. Anderson, Ronald L. Tatham, and William C. Black, *Multivariate Data Analysis with Readings* (Englewood, N.J.: Prentice-Hall, 1995), 170.

the highest among the four sample countries and is significantly better than that in Malaysia ($F = 2.173$, $P = 0.091$). Singapore attracts more Taiwanese growth firms.

Concluding Remarks

This paper has examined the effects of capital utilization and industrial differences on the financial performance of foreign direct investment. Using Taiwanese investments in mainland China, Singapore, Malaysia, and Thailand as empirical samples, we have catalogued significant difference in the financial performance of these foreign investments.

In terms of capital utilization, the data in financial statements indicates that Taiwanese parent companies with smaller size, higher liquidity, or greater profitability tend to have better financial performance in overseas investments. According to our empirical findings, industrial differences in profitability or growth obviously appear in the financial performance of Taiwanese foreign investments. In addition, the geographical area and economic strategy of a country may also affect the scale and quality of its foreign direct investments.

In this paper, we used the most recent, yet still preliminary, data from the year 1999 to examine the financial performance of Taiwanese overseas investments. Even though the financial performance may be affected by the economic conditions in a particular year, capital and industry migration still shows up as an important factor of performance. In addition, due to restrictions on Taiwanese companies' direct investments in mainland China, the so-called triangle (or indirect) trading pattern may affect the evaluation of their financial performance. Thus, the accounting information of capital utilization and industrial differences should be interpreted more carefully as far as determining financial performance is concerned. The authors suggest that future research into Taiwanese FDI performance in mainland China should examine the capital and industry migration issues with a detailed consideration of the specific trading pattern over a longer period.